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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/623,605 | 07/22/2003 | Victor W. Lee | 2207/16345 | 5033 |

7590 05/10/2006
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EXAMINER

BAKER, STEPHEN M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2133

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,605

Applicant(s)

LEE ET AL.

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1-27 are objected to because of the following informalities:

Regarding claims 1, 11, 14, 22 and 26, "determining a minimum transition density" apparently should be "encoding responsive to a minimum pulse transition density," or "determining that a retraining flit is required" or the like, because apparently only a free-cycling timer of predetermined time-out rate is used to determine when retraining flits are used [0028]. The invention apparently actually operates to *maintain* a minimum transition density, a parameter presumably developed during the *design-stage* of the transmitter, rather than operating based on a minimum transition density parameter generated by the transmitter *in situ*.

Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities:

Reference is hereby made to the discussion of "*determining* a minimum transition density" in paragraph 1 of this Office action, with reference to the many portions of the specification using the same phrasing synonymously with *maintaining* a minimum transition density.

The optional mechanism of CRC polynomial selection is not shown in any detail and is somewhat confusingly described to imply that a CRC *generator* polynomial is

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selected and that this selection is made with the aim of increasing the number of transitions in the retraining flit.

Apparently contradicting the statement that the payload, control and error detection data in *one* retraining flit meet the link's minimum transition density requirement [0023] is an arrangement described as if it calculates the *multiple* number of retraining flits required in each retraining period [0028].

There is no description or drawing figure showing the transmission or format of any signals other than the retraining flits themselves. The exemplary minimum transition density of 2-5 transitions in 1024-4096 bits [0023] seems unrealistic in that it appears to imply retraining could be accomplished by unmodulated data without the need for special flits specifically designed for retraining.

The specific manner by which the data module 32 operates to "stagger" the payload data over the payload region in order to reduce switching noise and ensure that some non-specified switching noise constraint is met is not discussed or shown in any detail.

The specification is generally ambiguous regarding whether an idle flit's payload and sideband carry data useful for anything besides retraining.

Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show details of the CRC polynomial selection and of the staggering of data across a payload

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as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The intended *meets and bounds* of a "retraining flit" have not been defined clearly enough to exclude an idle flit or any other modulation-coded data flit. It is noted that there is apparently no requirement for the receiver clock lose synchronization to any specific degree before being "retrained," there also being no requirement that *non-retraining* data be placed between "retraining flits."

Allowable Subject Matter

6. The indicated allowability of claims 3-5, 8, 11-13, 16-18, 21 and 25 is withdrawn in view of the newly discovered references to Bunton, Osborne, Widmer and Cassidy *et al.* Rejections based on the newly cited references follow.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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8. Claims 1, 2, 6-10, 14-17, 19-24, 26 and 27 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,941,425 to Osborne (hereafter "Osborne").

Osborne discloses software-based timer-controlled (i.e. intermittent) transmission of multiple retraining flits that maintain a specified minimum pulse density. Osborne's retraining flits also include a data portion, a control portion and a CRC portion.

9. Claims 1, 2, 6-10, 14-17, 19-24, 26 and 27 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 7,010,607 to Bunton (hereafter "Bunton").

Bunton discloses transmission of idle (i.e. intermittent retraining) flits that maintain a specified minimum pulse density. Bunton's idle flits include a data field, a control field in a sideband, and a CRC.

Claim Rejections - 35 USC § 103

10. Claims 3, 4, 12, 16, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunton in view of U.S. Patent No. 6,684,363 to Cassidy *et al* (hereafter "Cassiday").

Bunton does not discuss details of the CRC generation used by Bunton's system. Cassidy discloses details of CRC generation for flits, including table-lookup selection of a multibit sequence (i.e. polynomial) as a CRC term contribution for each uncoded payload bit, and using control data (i.e. sequence number data) to further modify the payload CRC result, thereby "identifying a plurality of cyclic redundancy code (CRC) polynomials" and "determining a corresponding CRC checksum for each of the plurality of CRC polynomials based on the control data and the payload data," as well as

“selecting a CRC polynomial from the plurality of CRC polynomials, the selected CRC polynomial resulting in a CRC checksum that has sufficient transitions to meet the minimum transition density, the error detection data including the resulting CRC checksum.” It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Bunton’s flit CRC generation by using Cassiday’s flit CRC generator. Such an implementation would have been obvious because of the noted suitability of Cassiday’s flit CRC generator arrangements to high-speed CRC generation.

11. Claims 3, 4, 12, 16, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne in view of Cassiday.

Osborne does not discuss details of the CRC generation used by Bunton’s system. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Osborne’s flit CRC generation by using Cassiday’s flit CRC generator. Such an implementation would have been obvious because of the noted suitability of Cassiday’s flit CRC generator arrangements to high-speed CRC generation.

12. Claims 5, 11-13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunton in view of U.S. Patent No. 6,496,540 to Widmer (hereafter “Widmer”).

Bunton does not disclose “staggering the payload data across a payload region ... based on switching noise constraints.” Widmer discloses transmitting the payload portion of a flit while “staggering the payload data across a payload region” (Figs. 3 and

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4), presumably based on constraints including switching noise constraints” such as physical channel separation and isolation in the parallel channel paths. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Bunton’s flit generation by using Widmer’s flit data staggering. Such an implementation would have been obvious because Widmer’s flit data staggering is presumably based at least in part on necessary physical channel separation and isolation in the parallel channel paths.

13. Claims 5, 11-13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne in view of Widmer.

Osborne does not disclose “staggering the payload data across a payload region ... based on switching noise constraints.” Widmer discloses transmitting the payload portion of a flit while “staggering the payload data across a payload region” (Figs. 3 and 4), presumably based on constraints including switching noise constraints” such as physical channel separation and isolation in the parallel channel paths. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Osborne’s flit generation by using Widmer’s flit data staggering. Such an implementation would have been obvious because Widmer’s flit data staggering is presumably based at least in part on necessary physical channel separation and isolation in the parallel channel paths.

Response to Arguments

14. Applicant's arguments with respect to all claims have been considered but are moot in view of the new grounds of rejection.

The disclosure appears to be constructed to *create* a wide variety of artificial and frivolous problems specifically directed to an examiner, as opposed to being constructed to *merely solve technical problems*.

It is assumed in the rejections that a "flit" should be a minimum sized transmission unit in the context of flow control, and that the retraining flit should have enough transitions to train/maintain a receiver clock.

Conclusion

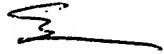
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker
Primary Examiner
Art Unit 2133

smb